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NOTES ON GEOGRAPHIC DISTRIBUTION

New Records of Cheloninae (Förster, 1862) and Braconinae (Nees, 1811) (Insecta: Hymenoptera: Braconidae) from Iran

Abdullah Lashkari Bod [1], Ehsan Rakhshani [1*], Ali Asghar Talebi [2], Aurel Lozan [3] and Vladimir Žikić [4]

1 University of Zabol, College of Agriculture, Department of Plant Protection. 98615-538. Zabol, I.R. Iran
2 Tarbiat Modares University, College of Agriculture, Department of Entomology. 14115-336. Tehran, I.R. Iran
3 Academy of Science of the Czech Republic, Biological Centre, Department of Wetland Ecology and Conservation, Branisovska str. 31, 37005. České Budějovice, Czech Republic
4 University of Niš, Faculty of Sciences and Mathematics, Department of Biology and Ecology. 18000-224, Niš, Serbia
* Corresponding author. E-mail: *rakhshani@uoz.ac.ir*

ABSTRACT: The occurrences of *Chelonus erythrogaster* Lucas, 1848 (Braconidae, Cheloninae) and *Glyptomorpha nachitshevanica* Tobias, 1976 (Braconidae, Braconinae) are noted here for the first time as members of the fauna of Iran. The specimens were collected from Fars province (Southern Iran). Morphological characters of both species are briefly described together with brief diagnostic comments and discussion about their distribution.

Braconidae is one of the largest families of the parasitic wasps, split into about 45 subfamilies worldwide, with a wide diversity of habitats and biology (Shaw and Huddleston 1991; van Achterberg 1993). Subfamily Cheloninae is a large subfamily of Braconidae with more than 500 known species worldwide (Walker and Huddleston 1987). Adult chelonines have distinctive carapace that covers the whole metasoma dorsally, formed by fusion of the first three metasomal terga (Dudarenko 1974). Many species of chelonines were recorded from Iran (Fallahzadeh and Saghaei 2010; Ghahari *et al*. 2010) mostly belonging to the genera *Chelonus* Panzer, 1806 and *Phanerotoma* Wesmael, 1838.

The subfamily Braconinae is as well a large group of insects with more than 2000 species described worldwide, characterized by a hypoclypeal depression between the clypeus and the mandibles and by an occipital carina absent in the head (Shaw and Huddleston 1991). They are the most diverse group of Braconidae in the Old World tropics and are also well represented in the New World (Wharton *et al.* 1997). Until now, there were about 35 species of Braconinae belonging to seven genera recorded from Iran (Fallahzadeh and Saghaei 2010; Ghahari *et al*. 2010), clearly representing a small part of this numerous group of insects. Compared to the high species diversity and distribution of Braconidae, very few taxonomical works contributed to this group in Iran so far (Telenga 1936; Hedwig 1957; Fischer 1963; Fischer *et al*. 2011; Ghahari *et al*. 2010). This paper presents two new records of braconids from two different subfamilies, including diagnostic comments and discussion about their distribution.

The braconid specimens were collected in Fars province during 2007–2009 using net sweeping. All obtained specimens were preserved in ethanol 90%, then dried, pinned, labeled and mounted into collection boxes. Slides of left fore and hind wings were made; separated from the rest of the body in order to provide further detailed study of the wing venation. Illustrations were made using the Nikon SMZ stereomicroscope equipped with the Sony W100 digital camera. The morphological terminology is used according to van Achterberg (1993). Specimens were deposited in the Insect Collection of the Biology Centre of the Academy of Sciences of the Czech Republic, České Budějovice.

Two species of braconids are newly recorded for the fauna of Iran: *Chelonus erythrogaster* from the subfamily Cheloninae and *Glyptomorpha nachitshevanica* from the subfamily Braconinae.

Chelonus* (*Microchelonus*) *erythrogaster Lucas, 1846 **(Figures 1-4)**

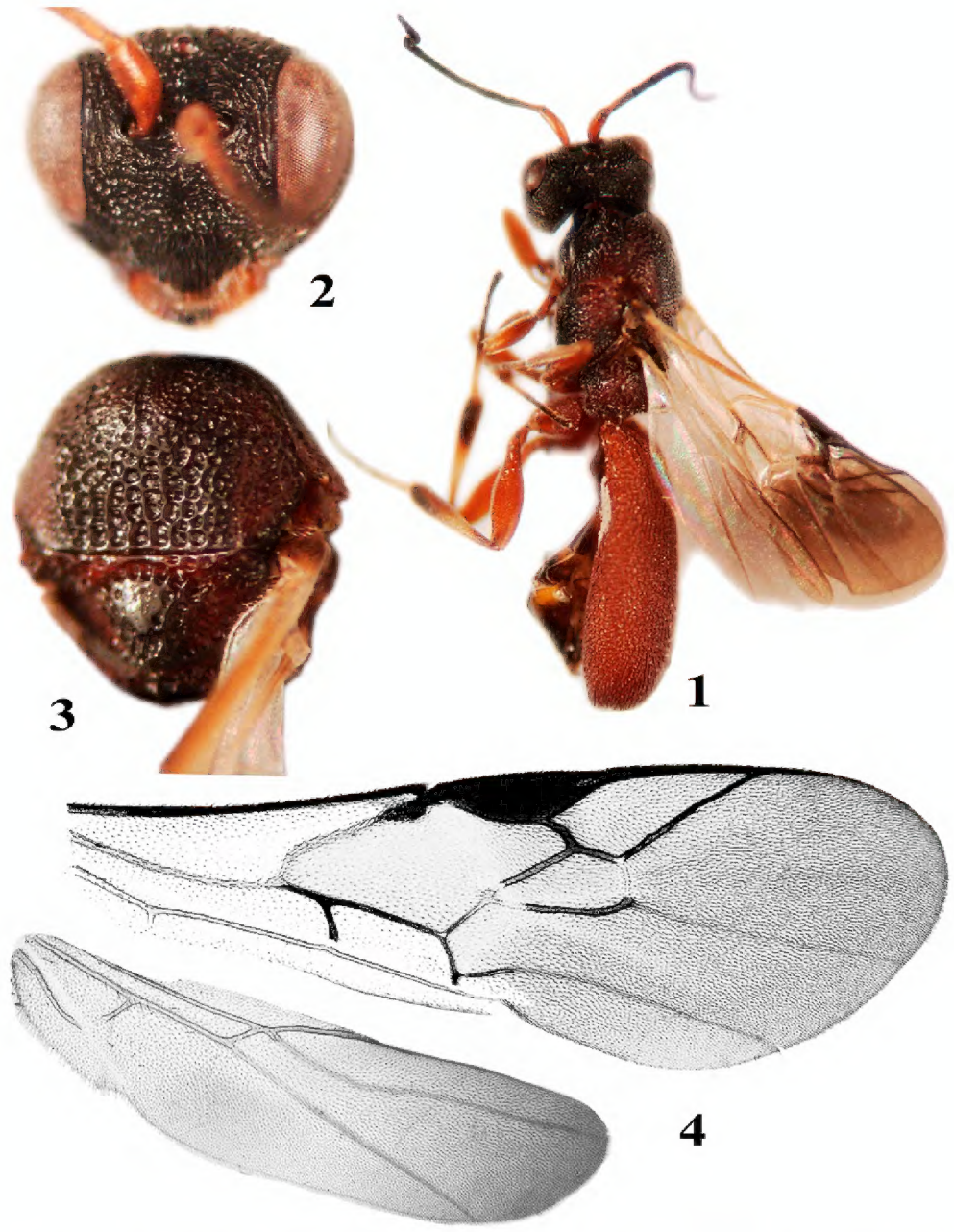
Material examined: 1♀, Fars province: Zarghan, fruit garden, July 18th, 2008.

Head (Figure 2) transverse in dorsal view, strongly rugose, compound eye oval, without setae, antennae 18-segmented, terminal flagellomere pointed, first flagellomere (F1) length/width ratio = 2.33, first flagellomere slightly shorter than second flagellomere (length ratio of F1/F2 = 0.77), tentorial index (tentorial pits distance/distance from tentorial pit to compound eye) = 0.60, occiput bare and roughly rugose.

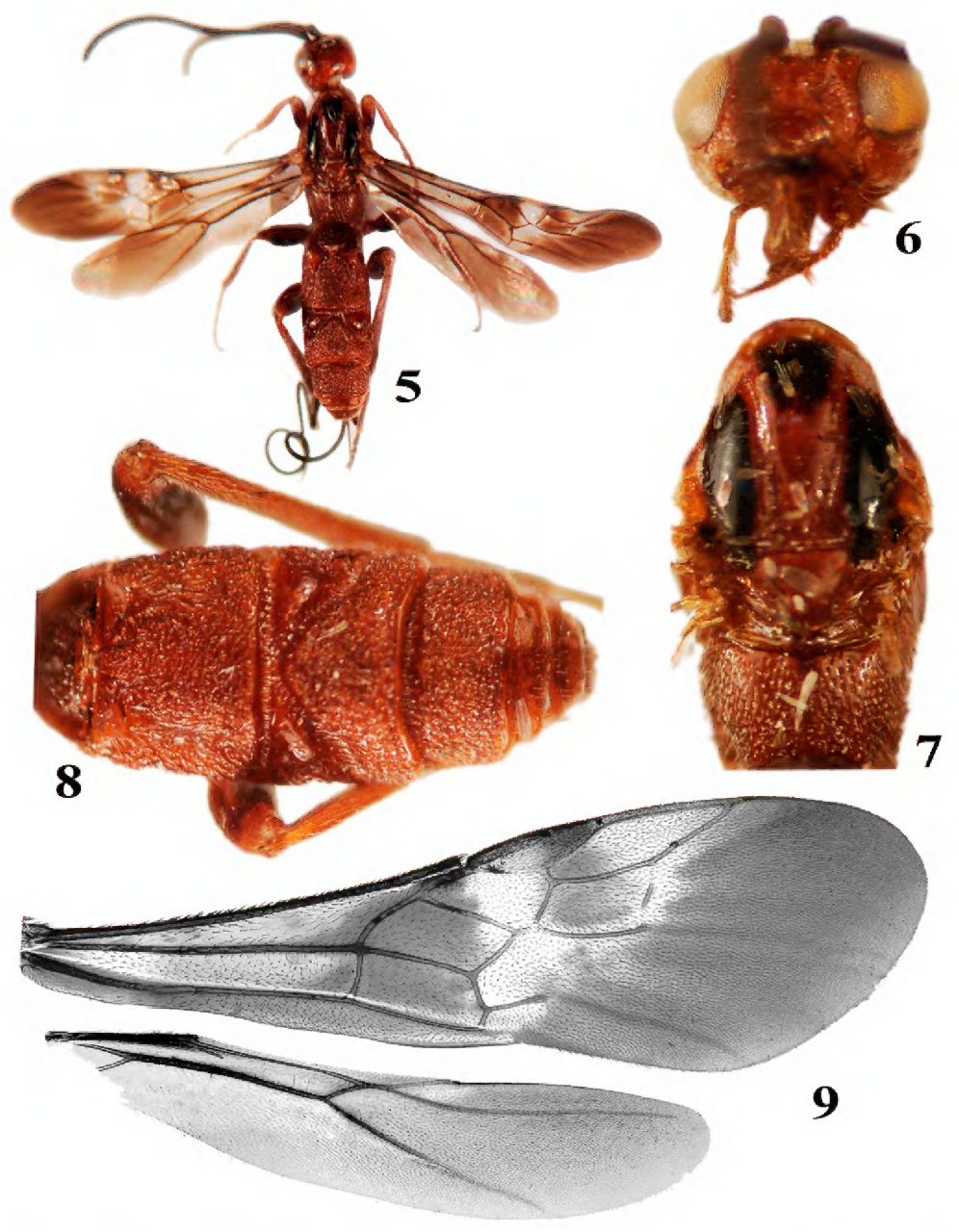
Mesosoma (Figure 3) wider than head in dorsal view, length/width ratio of mesosoma = 1.64, notaulices effaced and not visible dorsally. Forewing (Figure 4) length = 4.0 mm, pterostigma nearly wide, hind coxa swollen, densely setose, length /width ratio of hind coxa = 0.46.

Metasoma (Figure 1) with short setae, ground of metasoma roughly rugose, length/width ratio of carapace = 2.05.

Color. Head and thorax dark brown, carapace uniformly red. Scape, pedicel and first flagellar segment reddish, other antennal segment dark brown. Legs reddish brown, tibia yellowish brown, darkened at apical portion, basitarsus yellow, other tarsal segments dark brown. Forewings infumated in half distal part.



Figures 1-4. The external morphology of *Chelonus erythrogaster*. 1) Dorso-lateral view of general habitus; 2) Frontal view of head; 3) Dorsal aspect of mesoscutum; 4) Fore and hind wings.



Figures 5-9. The external morphology of *Glyptomorpha nachitshevanica*. 5) Dorsal view of general habitus; 6) Frontal view of head; 7) Dorsal view of thorax; 8) Dorsal view of gaster; 9) Fore and hind wings.

Chelonus erythrogaster is a species known from Tunisia and Algeria (Tobias 1972, 2001), Turkey (Beyarslan 1985), Croatia and Italy (Achterberg, 2009) and for the first time recorded from Iran. 11 other species of the genus *Chelonus* Panzer together with some species of the genera *Ascogaster* Wesmael and *Phanerotoma* Wesmael have already been recorded from Iran (Fallahzadeh and Saghaei 2010; Ghahari *et al*. 2010).

Glyptomorpha nachitshevanica Tobias, 1976 (Figures 5-9)

Material examined: 1♀, Fars province: Sepidan, apple orchard, May 20th, 2008.

Head (Figure 6) distinctly wider than thorax in dorsal view, compound eye oval, without setae. Antennae 45-segmented, densely covered with extremely short setae, terminal flagellomere pointed, first flagellomere (F1) length/width ratio = 1.5, first and second flagellomere equal in length, tentorial index (tentorial pits distance/ distance from tentorial pit to compound eye) = 0.66; occiput smooth, shiny, sparsely setose.

Mesosoma (Figure 7). Pronotum and mesoscutum smooth, shiny, sparsely setose, notauli deeply impressed and distinct; propodeum densely setose. Forewing (Figure 9) length = 5.0 mm; length ratio of veins r/3RSa = 0.175, length ratio of veins 3RSb/3RSa = 1.07. Hind-wing: length ratio of veins CS+R/1r-m = 5, vein 2-1A absent.

Metasoma (Figure 8) moderately setose, metasomal segments sclerotized, ratio of the first tergum length/ distal width = 0.66, first metasomal segment longer than other segments, two triangular areas located on the lateral sides of the first and the second metasomal segments, metasoma 7-segmented, ovipositor (Figure 5) longer than metasoma.

Color: Generally and extensively reddish or brown-red with dark spots on mesosoma (mesonotum with 3 distinctive spots), wings extensively dark brown spotted.

Glyptomorpha nachitshevanica is known so far only from the Nakhichevan region of neighboring Azerbajdzjan (see original description of species in Tobias 1976). Occurrence of *Glyptomorpha nachitshevanica* is the second species record of the genus *Glyptomorpha* (Holmgren, 1868) for Iran. The first species, *Glyptomorpha pectoralis* (Brullé, 1832) together with some other species of the genus are widely encountered throughout central and southwestern Asia till Far East or rarely in adjacent territories of Europe (Tobias 1976, 1986; Beyarslan *et al*. 2006; Papp 2009). However, most species of *Glyptomorpha* are generally distributed in the tropics and/or subtropics. Further extensive studies are necessary to understand the diversity and distribution of other species of both above mentioned genera.

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